

1 **THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY**
2 **OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

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4 1. A medical imaging system comprising a patient support surface, an imaging apparatus
5 having a support table located within said support surface, and adjustable relative to said support
6 surface to be located above said surface and thereby engage a portion of said patient to be
7 imaged.

8 2. A medical imaging system according to claim 1 wherein said imaging apparatus includes
9 a chamber to receive a portion of said patient to be imaged, said table having an aperture to
10 permit positioning of said portion in said chamber.

11 3. A medical imaging system according to claim 2 wherein a sensor is provided on said
12 table to indicate orientation of said patient.

13 4. A medical imaging system according to claim 3 wherein a pair of sensors is provided at
14 diametrically opposed locations for detection of body orientation.

15 5. An ultrasound scanner assembly comprising a base, a drum rotating on said base, a
16 transducer head rotating with said drum and displaced relative to said drum along an axis parallel
17 to the axis of rotation, said head including a plurality of transducers each operable to propagate a
18 wave along an axis of propagation and to receive signals from respective focal zones spaced
19 relative to one another along said axis of propagation.

20 6. A scanner assembly according to claim 5 wherein said axis of propagation is inclined to
21 said axis of rotation.

22 7. A scanner assembly according to claim 6 wherein said axis of propagation is inclined at
23 an angle generally orthogonal to the average target surface of a portion of a patient within said
24 drum.

25 8. A scanner assembly according to claim 6 wherein said angle of propagation is between
26 65° and 55° to said axis of rotation.

27 9. A scanner assembly according to claim 8 wherein said angle of propagation is 60° to said
28 axis of rotation.

29 10. A scanner assembly according to claim 5 wherein said zones are located at a portion of
30 said wave remote from the transducer and said angle of propagation permits insonification of a
31 region beyond said drum.

- 1 11. A scanner assembly according to claim 7 wherein said transducers are interfaced to and
2 controlled by an electronic circuit mounted on said drum for rotation therewith.
- 3 12. A scanner assembly according to claim 11 wherein said electronic circuit includes an
4 amplifier to adjust the gain of signals received by respective ones of said transducer.
- 5 13. A scanner assembly according to claim 7 wherein said transducers are located in a
6 channel in fluid communication with said drum.
- 7 14. A scanner assembly according to claim 7 including an encoder to indicate the position of
8 said drum about the axis and thereby control operation of said transducers at predetermined
9 intervals.
- 10 15. A scanner assembly according to claim 16 wherein said encoder includes a registration
11 position and movement of said transducer head relative to said drum is initiated upon attaining
12 said registration position.
- 13 16. A scanner assembly according to claim 17 including a signal indicative of a limit of
14 movement of said transducer head relative to said drum.
- 15 17. A scanner assembly according to claim 5 including a data transfer interface to transfer
16 data over a network to a recipient.
- 17 18. A scanner assembly according to claim 5 wherein said focal zones overlap and data from
18 each signal in overlapping portions of said focal zones is compared to conform said signals to a
19 common base.
- 20 19. A scanner assembly according to claim 18 wherein each of said signals is adjusted for
21 attenuation in said overlapping portions prior to comparison.
- 22 20. A scanner assembly according to claim 18 wherein an attenuation profile is obtained
23 from an evaluation of data collected during a scan to application to said signals.
- 24 21. A method of monitoring a medical condition through insonification with ultrasound by
25 locating a portion of a patient on a scanner in a predetermined position to permit acquisition of
26 date in a repeatable manner, conducting a succession of scans of the area of interest of the patient
27 at predetermined intervals, transferring the scan to a remote location and comparing time
28 separated scans to determine changes in said mcdical condition.
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